WHAT IS CLAIMED IS:

1. A method for manufacturing a high voltage device and a low voltage device comprising steps of:

(a) depositing a first oxidation film and a nitride film sequentially on a SOI substrate where a lower substrate, a buried oxidation film and an upper silicon layer are sequentially stacked;

(b) removing the nitride film and the first oxidation film of the high voltage device region by etching, after defining the high voltage device region on a total structure;

(c) forming the upper silicon layer of the high voltage device region thinner than the upper silicon layer of the low voltage device region by growing a second oxidation film in the high voltage device region;

(d) removing the second oxidation film and the remaining portions of the nitride film and the first oxidation film;

(e) forming the high voltage device region and the low voltage device region by etching the upper silicon layer, after defining a device isolation region;

(f) forming a p-well in the low voltage device region, and a p-well and a drift region in the high voltage device region;

(g) forming a thin gate insulation film in the low voltage device region, and a thick gate insulation film in the high voltage device region;

(h) forming a gate electrode, a LDD region, a sidewall oxidation film, a source region and a drain region in the low voltage device region and the high voltage device region, respectively; and

(i) forming a source electrode and a drain electrode, after depositing an interlayer insulation film on an upper surface of a total structure.

2. The method as claimed in claim 1,

wherein in the (c) step, the second oxidation film is grown to have 6000~8000 Å in thickness, and

the upper silicon layer of the high voltage device region is in a range of 0.2~0.5 ㎛ in thickness.

3. The method as claimed in claim 1,

wherein in the (c) step,

the second oxidation film is grown by using a high-pressure oxidation growth process.

4. The method as claimed in claim 1,

wherein the (g) step comprises steps of;

forming a third oxidation film in the high voltage device region and the low voltage device region;

performing ion implantation in the low voltage device region, thereby a threshold voltage being adjustable;

removing the third oxidation film formed in the low voltage device region; and

forming a fourth oxidation film on the high voltage device region and the low voltage device region.

5. The method as claimed in claim 1,

wherein in the (h) step,

a thickness of the silicon device region, where the high voltage device is formed, is intended to be equal to a junction depth of impurities of the source and drain in the low voltage device.

6. A method for manufacturing a high voltage device and a low voltage device comprising steps of:

(a) depositing a first oxidation film and a nitride film sequentially on a SOI substrate where a lower substrate, a buried oxidation film and an upper silicon layer are sequentially stacked;

(b) coating a photoresist film on a total structure, and defining a high voltage device region and a low voltage device region by photolithography process;

(c) removing the nitride film and the first oxidation film of the high voltage device region by etching;

(d) growing the second oxidation film in the high voltage device region;

(e) removing the second oxidation film by etching while remaining some portion of the second oxidation film to have a predetermined thickness; and

(f) removing the remaining portion of the first oxidation film and the second oxidation film after etching the nitride film.

7. The method as claimed in claim 6,

wherein in the (d) step,

the second oxidation film is grown to have 6000~8000 Å in thickness.

8. The method as claimed in claim 6,

wherein the upper silicon layer of the high voltage device region is made to be thinner than the upper silicon layer of the low voltage device region by repeating the (d) and (e) steps.

9. The method as claimed in claim 6,

wherein the upper silicon layer of the high voltage device region is formed in a range of 0.2~0.5 ㎛ in thickness.

10. The method as claimed in claim 6,

wherein in the (d) step,

the second oxidation film is grown by using high pressure oxidation growth process.

11. The structures of a high voltage device region and a low voltage device region formed on a SOI substrate,

characterized in which an upper silicon layer of silicon device region in the SOI substrate is made to be thicker by steps in the low voltage device region than in the high voltage device region.

12. The structures as claimed in claim 11,

wherein a thickness of the silicon device region, where the high voltage device is formed, is intended to be equal to a junction depth of impurities of the source and drain in the low voltage device.

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13. The structures as claimed in claim 11,

wherein the upper silicon layer of silicon device region in the high voltage device region has a thickness in a range of 0.2~0.5 μm.